VI. 1990 ADULT FISH PASSAGE

The FPC objective is to coordinate fishway inspections at 13 mainstem Columbia River dams and maintain upstream passage information on adult salmonids at these sites.

Fish facility inspections by fishery agency personnel are done at monthly intervals to ensure that facilities are operating according to established criteria so that fish will pass safely with minimal delay at each project. During 1990, most facilities were operated at or near criteria throughout the adult fish passage season. A detailed report of the 1990 project inspections will be published in February 1991.

Adult salmonid counts at mainstem projects in the Columbia River provide measures of escapement into various parts of the drainage. These counts are used by harvest managers in setting harvest goals for the various fishing seasons in the Columbia Basin, and in assessing adult passage conditions at the projects. A problem noted in 1990 was the continuing decline in the total number of adult salmonids passing Bonneville Dam and upstream projects (Table 16).

Adult salmonids encounter many obstacles on their upstream journey. They must pass from one to nine mainstem dams, which may have potential high spill levels, varying flow levels, and warm water temperatures during the summer. Several passage problems were observed in 1990. The powerhouse failure at John Day Dam resulted in high spill levels at the project, causing associated passage delays. High spill levels in the Columbia River from May 30 through mid-June resulted in high dissolved gas levels at monitoring sites in the Columbia Basin, and some evidence of gas bubble symptoms in adult and juvenile salmon. Fallback of adults probably occurred at some projects during periods of high spill, resulting in overcounting of adults and some injury to the fish. Some minor delays occurred during short-term equipment failures at the projects. The warmer-than-normal water temperatures from late July through September delayed fish migrations, and likely caused additional mortalities from stress and disease this season. Water temperatures were at near lethal levels at some locations and passage was very low in the Snake River during the summer migration compared to 1989. Systems Operational Requests for flows to facilitate adult fish passage were submitted to the COE in late August. Flow in the Snake was requested to be at an instantaneous minimum of 30 kcfs. The daily average flows were at or above 30 kcfs on only five days during September. The monthly average was 26 kcfs, with a minimum daily average flow of 18.6 kcfs and a maximum of 35.4 kcfs. Overall, the loss of fish between the projects this season was higher than normal, based on counts at individual dams.

A summary of adult fish counts at Bonneville, McNary, Ice Harbor, and Priest Rapids dams is shown in Table 16. Trends in adult passage are illustrated in Figure 17 for Bonneville Dam. Upriver bright and tule fall chinook trends are shown in Figure 18 for McNary Dam and Spring Creek

Table 16. A comparison of Columbia River adult fish counts at Bonneville, McNary, Ice Harbor, and Priest Rapids dams for calendar years 1989 and 1990, and the 10-year average (1980-1989)[1].

	1990	1989	10-Year Average
Summer Steelhead[2]			
Bonneville	183,100	287,800	247,000
McNary	91,500	166,600	125,700
Ice Harbor	51,900	146,400	88,900
Priest Rapids	7,700	10,600	18,000
Spring Chinook			
Bonneville	96,300	87,300	80,800
McNary	44,500	36,000	42,900
Ice Harbor	20,700	17,000	21,800
Priest Rapids	12,300	12,000	14,900
Summer Chinook			
Bonneville	28,000	33,000	30,400
McNary	22,300	24,700	20,900
Ice Harbor	5,800	4,200	5,500
Priest Rapids	16,000	20,200	15,100
Fall Chinook (Adult Count)[3]			
Bonneville	177,300	263,100	199,500
McNary	57,600	96,500	75,800
Ice Harbor	3,500	4,600	2,700
Priest Rapids	6,100	14,800	13,600
Coho			
Bonneville	24,100	39,200	46,200
McNary	2,000	3,400	2,600
Ice Harbor	1	0	98
Priest Rapids	30	33	362
Sockeye			
Bonneville	49,600	41,900	88,100
McNary	45,100	41,300	49,000
Ice Harbor	1	4	85
Priest Rapids	46,300	45,300	68,200

1/ Numbers from 1990 and previous years are from Columbia River Intertribal Fish Commission and U.S. Army Corps of Engineers.
2/ Steelhead counts are from June 1 - October 31 or November 15, except at Bonneville Dam, where counts are from April 1 to November 15.
3/ Counts of Fall Chinook do not include jacks.

Note: All totals greater than 500 fish are rounded to the nearest 100 fish.

Hatchery, respectively. The bulk of the upriver run during the past 4 to 6 years has been composed of fall chinook "brights" and steelhead. This year's total adult salmon count at Bonneville Dam was 558,400 fish, which is the lowest since 1983. Tule fall chinook (Spring Creek Hatchery stock), spring chinook, and sockeye showed increased numbers at Bonneville Dam from 1989 to 1990; however, the overall passage of salmon during the same period was reduced by nearly 150,000 fish. Escapement of some stocks and races remain at extremely low adult return levels. Chinook jack returns at many sites were also depressed, and may result in fewer adult returns for 1991. Most hatcheries were able to obtain sufficient broodstock this season to meet the coming year's planned juvenile salmon releases for the Basin.

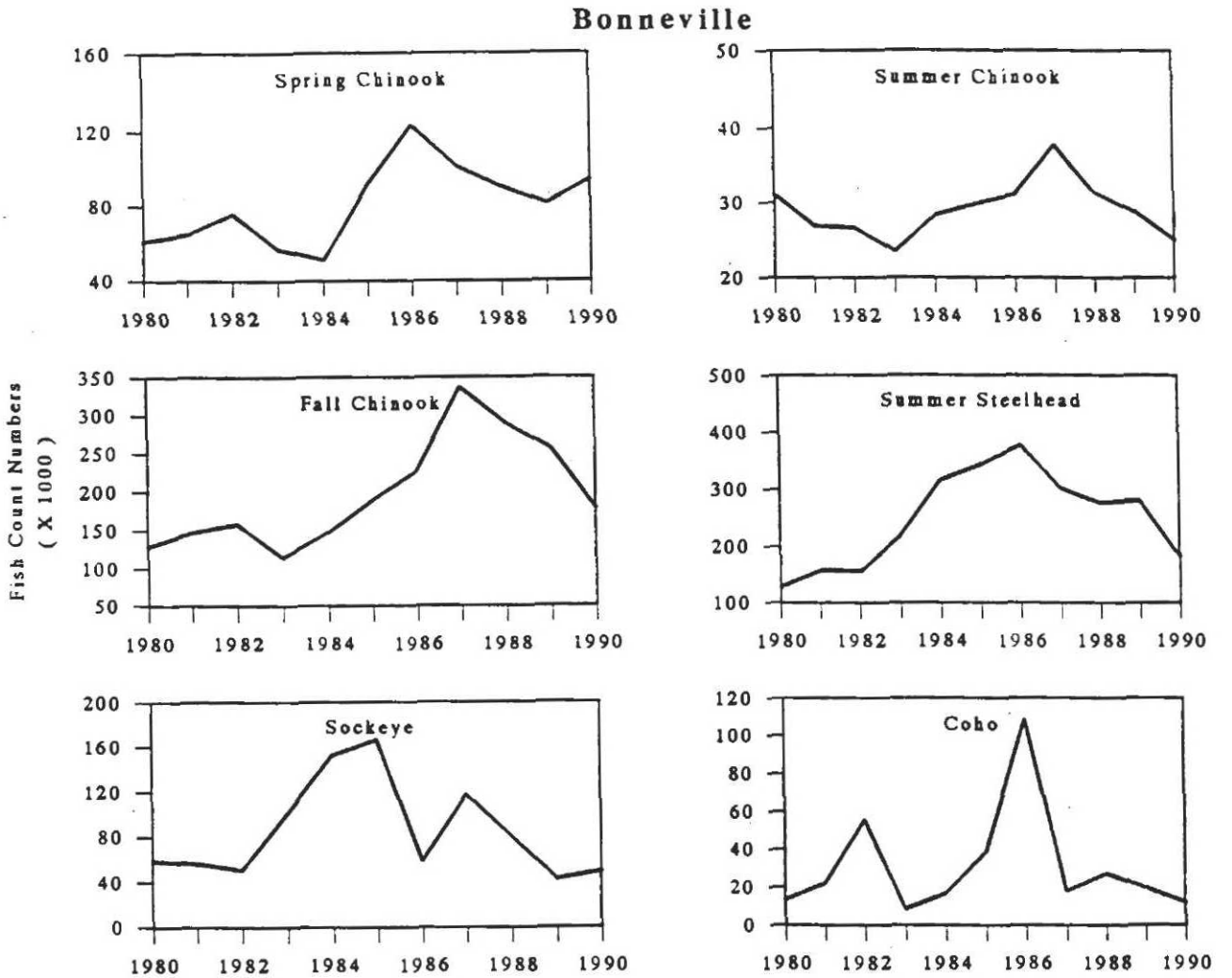

Figure 17. Passage of adult salmonids at Bonneville Dam 1980-1990.

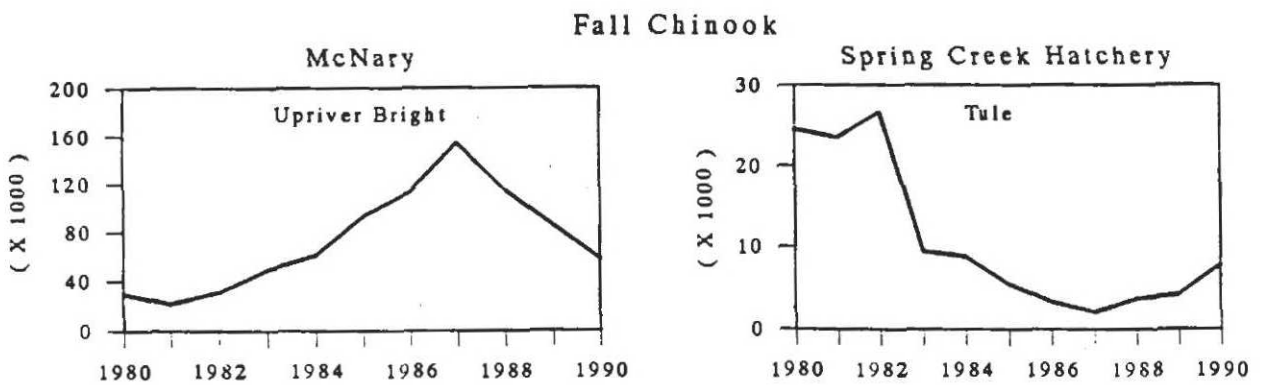

Figure 18. Passage of adult upriver bright fall chinook at McNary Dam, and escapement of adult tule fall chinook to Spring Creek Hatchery, 1980-1990.